

Remarks

Claims 21-36 are pending. In this paper, all the claims are unchanged.

Claims 21-31 and 35-36 stand rejected for alleged obviousness from a combination of Sakumoto, Saito, VanNortwick, and Tsukagoshi. This rejection is traversed.

Claim 21 is directed to apparatus for attaching an adhesive-film strip, supplied from a length of adhesive film that comprises an adhesive portion and a coverlay portion adhering to the adhesive portion, to a support element. The apparatus comprises the following combination of features: (1) a support-element-feeder portion situated and configured to provide a support element; (2) an adhesive-film-attachment portion comprising a displaceable block; (3) a cutting blade situated relative to the block; (4) an adhesive-film-drive mechanism situated and configured to advance the length of adhesive film to the adhesive-film-attachment portion to place a desired portion of the adhesive film on the block; and (5) a coverlay-removal mechanism coupled to the adhesive-film-drive mechanism and configured to remove the coverlay portion from the desired portion of the adhesive film in synchrony with the adhesive-film-drive mechanism placing the desired portion of the adhesive film on the block. In addition, (6) displacement of the block a first distance causes the cutting blade to cut the adhesive-film strip from the length of adhesive film, and displacement of the block a second distance applies the cut adhesive-film strip to the support element provided by the support-element-feeder portion.

Sakumoto discusses removing a release film from the adhesive portion of an adhesive tape, cutting or punching the adhesive portion to produce a piece having a definite length, and bringing the piece of adhesive portion into contact with a lead frame. Then, an IC chip is placed on the adhesive portion, and the resulting assembly is heated to cure the adhesive. Col. 4, lines 13-24. It is first pointed out that Sakumoto provides no information as to an apparatus for performing these steps or of how an apparatus might be configured to perform these steps. The Office action admits this on page 2.

It is also pointed out that Sakumoto's process is performed with an adhesive tape having a release film on the underside of the adhesive tape. A release film located on the underside of an adhesive film is not a coverlay, and requires that different technical considerations be taken into

account in its removal, compared to removing a coverlay that is located on the upper side of an adhesive film.

Third, Sakumoto fails to disclose or suggest anything concerning a block, and certainly nothing concerning a displaceable block. Sakumoto also fails to provide any hint of whether a displaceable block would be necessary or desirable, or of how a displaceable block would or could be used to do anything.

Fourth, Sakumoto fails to disclose or suggest anything concerning a cutting blade, and certainly nothing about a cutting blade that is situated relative to a displaceable block. FIG. 3 of Sakumoto states that pieces are cut or punched from the adhesive portion, but there are any of various ways, including by hand, that this could be done.

Fifth, Sakumoto fails to teach or suggest anything concerning an adhesive-film-drive mechanism that advances the length of adhesive film to the adhesive-film-attachment portion so as to place a desired portion of the adhesive film on the block. This shortcoming of Sakumoto is self-evident since this reference is silent about displaceable blocks.

Sixth, Sakumoto fails to teach or suggest anything concerning removing a coverlay portion from the desired portion of the adhesive film in synchrony with an adhesive-film-drive mechanism placing the desired portion of the adhesive film on the block. Again, this shortcoming of Sakumoto is self-evident since this reference is silent about displaceable blocks and about coverlays.

Seventh, Sakumoto fails to teach or suggest displacing the block a first distance to cause the cutting blade to cut the adhesive-film strip from the length of adhesive film. FIG. 3 of Sakumoto provides no indication whatsoever that a block is or could be involved in the cutting/punching step, especially a block that is also involved in placing the piece of adhesive portion on the lead frame (see next paragraph below).

Eighth, Sakumoto fails to teach or suggest displacing the block a second distance to apply the cut adhesive-film strip to the support element provided by the support-element-feeder portion. FIG. 3 of Sakumoto literally indicates that the piece of adhesive portion that was cut or punched is simply dropped onto the lead frame. This would not involve a block at all.

In view of the above, in which are listed eight features that are absent, both explicitly and implicitly, from Sakumoto, it readily can be seen that Sakumoto falls far short of teaching or

suggesting the combination of features recited in claim 21. In view of these shortcomings, the contention on page 2 of the Office action that "one of ordinary skill in the art reading Sakumoto et al would appreciate providing any combination of means to perform these steps" [emphasis added] is a far stretch indeed. In fact, the Office action's contention that Sakumoto, which provides no information whatsoever concerning apparatus, provides a person (skilled or not) with any combination of means for doing anything lacks any reasonable support in either Sakumoto or anywhere else.

Therefore, claim 21 and its dependents are properly allowable over Sakumoto.

The Office action contends that Saito fulfills deficiencies of Sakumoto, specifically that Saito provides means for removing a coverlay and discusses applying an adhesive film to a semiconductor wafer. In reply, it is first pointed out that applying a sheet of protective film to a wafer (as in Saito) is a much different process, and requires substantially different machinery and attention to different technical concerns, than applying a cut piece of adhesive-film strip to a support member. For example, handling an entire wafer is a far cry from handling a support member, and handling a sheet of protecting film for application to a wafer, as discussed in Saito, is a far cry from handling a cut piece of adhesive-film strip and attaching it to a support member. Saito addresses concerns that are similar to concerns that would be faced by someone attempting to apply a sheet of sticky Saran Wrap smoothly (without wrinkles or entrapped air bubbles) to a large, flat surface. As such a person will attest, these concerns are entirely different from the concerns of the instant claim 21. For example, Saito addresses these concerns by applying a back-tension (tensile force) to the film as the film is being applied to the wafer (but without warping the wafer), and by eliminating residual cut remnants of the film by using a particular method of cutting the film around the circumference of the wafer after the film has been applied to the wafer.

Second, Saito fails to teach or suggest removing a coverlay; rather, Saito removes a release liner 111 from the protecting film.

Third, Saito fails to teach or suggestion anything concerning a support element or of attaching anything to a support element for any purpose or by any means. In this regard, Saito also fails to teach or suggest a support-element-feeder portion.

Fourth, Saito fails to teach or suggest anything concerning an adhesive-film-attachment portion comprising a displaceable block.

Fifth, Saito fails to teach or suggest anything concerning a cutting blade situated relative to the block. In this regard, Saito also fails to teach or suggest placing anything on a displaceable block. The Office action admits this on page 3.

Sixth, Saito fails to teach or suggest anything concerning removing a coverlay portion from a desired portion of an adhesive film in synchrony with an adhesive-film-drive mechanism placing a desired portion of adhesive film on a block.

Seventh, Saito fails to teach or suggest anything concerning displacing a block a first distance to cut an adhesive-film strip from a length of adhesive film and displacing the block a second distance to apply the cut adhesive-film strip to the support element. The Office action admits this on page 3.

Therefore, Saito simply is non-analogous art with respect to the claimed combination of features.

It is further pointed out that, in view of Saito being concerned with applying sheets of protective film to wafers, there is no teaching or suggestion in Sakumoto to seek out information in Saito to derive the instant combination of claimed features, and no teaching or suggestion in Saito to combine its disclosure with that of Sakumoto.

Therefore, claim 21 and its dependents are properly allowable over any combination of Sakumoto and Saito.

The many deficiencies of Sakumoto and Saito fail to provide the skilled person with the motivation to seek out other references to derive the specific combination of features in claim 21. Hence, there is no perceivable motivation to combine Sakumoto and Saito with a reference such as VanNortwick. Also, there is no perceivable motivation to combine either Sakumoto or Saito alone with VanNortwick. Sakumoto is concerned with configurations of adhesive tape, not with apparatus, and Saito simply is non-analogous art. Furthermore, the deficiencies of VanNortwick are already of record. One is left with the conclusion that the instant combination of Sakumoto, Saito, and VanNortwick as applied in the Office action represents, more likely than not, hindsight reconstruction of the instantly claimed combination, which is an improper basis for a rejection.

Therefore, claim 21 and its dependents are properly allowable over any combination of Sakumoto, Saito, and VanNortwick.

Applicant agrees with the admission in the Office action that "Sakumoto et al as modified by the combination of references [i.e., Saito and VanNortwick] is silent as to the cutting blade is situated relative to the block." In addition, contrary to the implication in the Office action, the deficiencies of Sakumoto, Saito, and VanNortwick are not satisfied by Tsukagoshi, which was cited in the Office action for its alleged discussion of "punching adhesive tape for thermocompression bonding to a lead or IC chip." It is clear that the many deficiencies noted above are not satisfied by this alleged disclosure of Tsukagoshi.

Therefore, claim 21 and its dependents are properly allowable over any combination of Sakumoto, Saito, VanNortwick, and Tsukagoshi.

Regarding claims 22-23, the Office action admits that "Sakumoto et al . . . is silent as to the apparatus is configured to attach the adhesive film to cover 70% to 98% of the wire bond slot." Applicant agrees. But, Applicant disagrees that VanNortwick satisfies this feature. The reason for this range of coverage and the problem solved by it are discussed in the instant specification on page 2, line 23 to page 3, line 11; page 13, line 13 to page 14, line 23. VanNortwick is concerned with other problems. Col. 2, lines 8-15. Nothing in VanNortwick even hints at the problem addressed by claims 22-23 or how to solve it. Furthermore, VanNortwick's use of stepping motors "to drive the feed rollers a predetermined complete or partial revolution and move the tape a corresponding linear amount" does not, without more than is provided by VanNortwick, state or suggest anything concerning attaching an adhesive film to provide the claimed range of coverage of wire-bond slots. The amount of rotation of a roller, per linear amount of feed of material from the roller, depends on the diameter of the roller. The fact that the roller does not undergo a full rotation to deliver a particular amount of feed does not mean that the roller has delivered a fractional amount of the desired amount of feed. Hence, the contention that VanNortwick supplies the skilled artisan with features as recited in claims 22-23 is groundless and hence is an improper basis for rejection.

Applicant agrees with the admission in the Office action that "Sakumoto et al as modified above is silent as to apparatus includes a film guide." But, any alleged disclosure in

VanNortwick of this feature does not satisfy other deficiencies of this reference, either alone or in combination with the other cited references.

Regarding claims 27-28, Applicant agrees with the admission in the Office action that "Sakumoto et al as modified above is silent as to the driven assembly includes a first push wheel and a second push wheel with the first push wheel is in engagement with the first side of the adhesive tape and the second push wheel is in engagement with the second side of the adhesive tape and the push wheel is pressed into engagement with the adhesive tape by a spring." But, any alleged disclosure in VanNortwick of feed rollers does not satisfy the many other deficiencies of the cited combination of references. Furthermore, in the subject claims, the push wheels are part of the adhesive-film-drive mechanism that places a desired portion of the adhesive film on the block, wherein the coverlay-removal mechanism removes the coverlay portion from the desired portion of the adhesive film in synchrony with the adhesive-film-drive mechanism placing the desired portion of the adhesive film on the block. Since VanNortwick is unconcerned with removing a coverlay, this reference does not and cannot teach or suggest push wheels in the context as currently claimed.

Regarding claims 29-31, Applicant agrees with the admission in the Office action that "Sakumoto et al as modified above does not [disclose] a wheel assembly to remove the coverlay film from the adhesive film." But, any alleged disclosure in Saito does not fulfill this or any of the various other deficiencies of Sakumoto. See earlier discussion above regarding Saito and Sakumoto.

Regarding claim 35, Applicant agrees with the admission in the Office action that "Sakumoto et al as modified above is silent as to a piston is operably coupled to the block to displace the block." But, any alleged disclosure in VanNortwick of a piston does not satisfy the many other shortcomings of the cited combination of references.

Regarding claim 36, Applicant agrees with the admission in the Office action that "Sakumoto et al as modified above is silent as to a vacuum passage situated and configured to hold the desired portion of the adhesive tape on the block by vacuum pressure." But, any alleged disclosure in VanNortwick of a vacuum passage does not cure the many other deficiencies of the cited combination of references.

Claims 32-34 stand rejected for alleged obviousness from a combination of five references: Sakumoto, Saito, VanNortwick, Tsukagoshi, and Wroblewski. In reply, it is pointed out that, especially in view of the foregoing discussion, the fact that five references have been combined to provide alleged support for this rejection indicates that, more probably than not, the subject claims have been rejected on the basis of hindsight picking and choosing of various claimed elements from the references, which is an improper basis for a rejection.

Regarding claims 32-33, Applicant agrees with the admission in the Office action that "Sakumoto et al as modified above is silent as to the apparatus comprises of an idler assembly positioned downstream of the drive wheel assembly." But, any alleged disclosure in Wroblewski of an idler roll assembly does not fulfill the various deficiencies of the cited combination of Sakumoto, Saito, VanNortwick, and Tsukagoshi.

Regarding claim 34, Applicant agrees with the admission in the Office action that "Sakumoto et al as modified above is silent as to the idler assembly includes a spring biasing the idler roller in a downstream direction." But, any alleged disclosure in Wroblewski of a spring bias does not fulfill the various deficiencies of the cited combination of Sakumoto, Saito, VanNortwick, and Tsukagoshi.

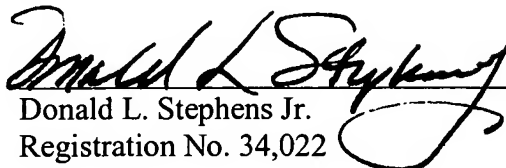
Therefore, the pending claims are in condition for allowance, and early action to such end is requested.

If any issues remain after consideration and entry of this paper, the examiner is requested to contact the undersigned to schedule a telephonic interview.

Respectfully submitted,

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